

I claim:

1. A network tap that enables multiple, independent and parallel monitoring devices to analyze communication flows through a connection without interfering with such flows,  
5 comprising:

means for supplying power to said network tap;

a pair of network ports, each network port having an input and output, for connecting said network tap to said connection;

10 a first internal channel for the input of a first communication flow through a first member of the pair of network ports, that duplicates and then forwards a first communication flow both within said tap and to an output of a second member of the pair of network ports;

15 a second internal channel for the input of a first communication flow through the second member of the pair of network ports, that duplicates and then forwards a second communication flow both within said tap and to an output of the first member of the pair of network ports;

at least one pair of monitoring ports, each monitoring port having an output for each of the first and second internal channels;

and,

20 for each internal channel and communication flow forwarded within said tap, means for further duplicating and forwarding the communication flow to the outputs of said pair of monitoring ports.

- 25 2. A network tap as in Claim 1, wherein the internal channel for each input of a communication flow through a member of the pair of network ports, that duplicates and forwards the communication flow both within said tap and to an output through the other member of the pair of network ports, further comprises:

a first splitter with a first, single-line end to which said input is connected and a second, double-line end with a first and second line, said first line connecting to said output through the other member of the pair of network ports and said second line connecting to said means for further duplicating and forwarding the communication flows to the outputs of said pair of monitoring ports.

3. A network tap as in Claim 2, wherein said means for further duplicating and forwarding the communication flow to said pair of monitoring ports further comprises, for each communication flow and internal channel:

a second splitter with a first, single-line end to which said second line from said first splitter is connected, and a second, double-line end with a first and second line; and, a signal-regenerating circuit board with a pair of inputs to which said first and second line from the second splitter are connected, and a pair of outputs connecting to the outputs of said pair of monitoring ports.

4. A network tap that enables multiple, independent and parallel monitoring devices to analyze communication flows through a connection without interfering with such flows, comprising:

means for supplying power to said network tap;

a pair of network ports, each network port having an input and output, for connecting said network tap to said connection;

a first internal channel for the input of a first communication flow through a first member of the pair of network ports with means for duplicating and forwarding the first communication flow both within said tap and to an output of a second member of the pair of network ports;

a second internal channel for the input of a second communication flow through the second member of the pair of network ports with means for duplicating and forwarding the second communication flow both within said tap and to an output of the first member of the pair of network ports;

5 at least two pairs of monitoring ports, each monitoring port having an output for the first and second internal channels;

and,

for each internal channel and communication flow forwarded within said tap, means for further duplicating and forwarding the communication flows to the outputs of all  
10 the monitoring ports.

5. A tap as in Claim 4, wherein said means for duplicating and forwarding the communication flow both within said tap and to an output of a member of the pair of  
15 network ports comprises a first splitter having a first single-line end connecting to said input and a second, double-line end with a first and second line, said first line connecting to the output of a member of the pair of network ports, and said second line connecting to said means for further duplicating and forwarding the communication flows to the outputs of all the monitoring ports.

20

6. A network tap as in Claim 5, wherein said means for further duplicating and forwarding the communication flows to the outputs of all the monitoring ports further comprises, for each communication flow and internal channel:

25 a second splitter with a first, single-line end to which said first splitter's second line is connected and a second, double-line end with a first and second line; and,

a signal-regenerating circuit board, with a pair of inputs to which said second splitter's first and second line are connected, and a pair of outputs;

wherein said pair of outputs of the signal-regenerating and timing coordination circuit board connect with means for further duplicating and forwarding the communication flows to the outputs of all the monitoring ports..

5

7. A network tap as in Claim 5, wherein said means for further duplicating and forwarding the communication flows to the outputs of all of the monitoring ports further comprises, for each communication flow and internal channel:

10 a second splitter with a first, single-line end to which said first splitter's second line is connected and a second, double-line end with a first and second line;

a signal-regenerating circuit board, with a pair of inputs to which said second splitter's first and second line are connected, and a pair of outputs; and,

15 for each output from a signal-regenerating circuit board, a third splitter with a first, single-line end to which said output is connected, and a second, double-line end with a first and second line, said first and second lines connecting with the outputs of a pair of monitoring ports.

8. A network tap as in Claim 7, wherein:

20 for the next level of duplication of signal, each said third splitter constitutes a second splitter; and,

for the next level of duplication of signal and third splitter constituting a second splitter, the signal-regenerating circuit boards and third splitters are likewise duplicated.

25

9. A network communications tap as in claim 4, further comprising:

a bidirectional splitter having a first, single-line end connecting to the output of a network port, and a second, double-line end with a first and second line, in which said first line is connected to said means for duplicating and forwarding a communication flow for an internal channel within said tap, and said second line  
5 is connected to an input of an interactive monitoring port;

said input of the interactive monitoring port allowing a signal from a device attached to said interactive monitoring port to be sent into said tap;

whereby said device connected to said input of the interactive monitoring port may send a signal through said interactive monitoring port's input and said second line through the  
10 bidirectional splitter to the output of a network port, the signal merging or overriding that from the first line.

15